CLAIM AMENDMENT(S)

Listing of Claims:

1. (Currently Amended) A machine readable medium that provides instructions, which when executed by a set of processors, cause said set of processors to perform operations comprising:

    receiving a packet on a circuit in a network element; and

    provisioning the circuit in the network element in response to said receiving the packet on the circuit.

2. (Original) The machine readable medium of claim 1, wherein the circuit is associated with a listening circuit structure before the packet is received on the circuit, and the circuit is disassociated from the listening circuit structure after the packet is received on the circuit.

3. (Original) The machine readable medium of claim 1, wherein provisioning the circuit comprises:

    identifying the circuit;

    creating a provisioned circuit structure for the circuit; and

    associating the circuit to the provisioned circuit structure.

4. (Original) The machine readable medium of claim 3, wherein creating the provisioned circuit structure comprises:

    retrieving a set of parameters corresponding to the circuit from a database; and

    populating an empty circuit structure with the set of parameters.

5. (Original) The machine readable medium of claim 1, further comprising unprovisioning the circuit upon a subscriber ending event.

6. (Currently Amended) A machine readable medium that provides instructions, which when executed by a set of processors, cause said set of processors to perform operations comprising:

    configuring a set of circuit as listening circuits in a network element;

    receiving a packet on one of the set of listening circuits;

    provisioning the one of the set of listening circuits in response to said receiving the packet on one of the set of listening circuits; and

    processing a set of subsequent packets received on the provisioned one of the set of listening circuits.

7. (Original) The machine readable medium of claim 6, wherein provisioning the one of the set of listening circuits comprises:

    retrieving a set of parameters for the one of the set of listening circuits from a database; and

    provisioning the one of the set of listening circuits with the set of parameters.

8. (Original) The machine readable medium of claim 6, wherein configuring the set of circuits as listening circuits comprises associating the set of listening circuits to a single circuit structure, this single circuit structure being a circuit structure having an indicator indicating the circuit structure as a listening circuit structure.

9. (Original) The machine readable medium of claim 6 further comprising unprovisioning the provisioned one in response to a subscriber ending event.

10. (Currently Amended) A machine readable medium that provides instructions, which when executed by a set of processors, cause said set of processors to perform operations comprising:

    listening for a packet over a set of configured circuits in a network element;

    receiving the packet on one of the set of configured circuits;

    identifying the one of the set of configured circuits;

signaling a routine that the packet has been detected on the one of the set of configured circuits;

retrieving a set of parameters for the one of the set of configured circuits from a database;

creating an empty circuit structure for the one of the set of configured circuits;

populating the empty circuit structure with the set of parameters, the populated empty circuit structure becoming a provisioned circuit structure; and

associating a set of subsequent packets received on the one of the set of listening circuits with the provisioned circuit structure.

11. (Original) The machine readable medium of claim 10, wherein listening for the packet over the set of configured circuits comprises associating the set of configured circuits to a listening circuit structure.

12. (Original) The machine readable medium of claim 10, wherein signaling the routine comprises passing the routine the listening circuit structure, the listening circuit structure identifying the one of the set of configured circuits.

13. (Original) The machine readable medium of claim 10, wherein the database can be a remote database or a local database.

14. (Original) The machine readable medium of claim 10 further comprising releasing the provisioned circuit structure and listening for a new packet over the one of the set of configured circuits in response to a subscriber ending event.

15. (Currently Amended) A machine readable medium that provides instructions, which when executed by a set of processors, cause said set of processors to perform operations comprising:

indicating a circuit structure as a listening circuit structure in a network element;

associating a set of configured circuits with the listening circuit structure;

receiving a packet on one circuit of the set of configured circuits;

provisioning the one circuit in response to <u>said</u> receiving the packet <u>on the one circuit</u>; and

accepting a set of subsequent packets received on the provisioned circuit.

16. (Original) The machine readable medium of claim 15 further comprising discarding a set of packets transmitted over an unconfigured circuit, the unconfigured circuit not being associated with the listening circuit structure.

17. (Original) The machine readable medium of claim 15, wherein provisioning the one circuit comprises:

identifying the one circuit with a circuit handle;

retrieving a set of parameters corresponding to the circuit handle from a database;

creating an empty circuit structure; and

populating the empty circuit structure with the set of parameters.

18. (Original) The machine readable medium of claim 17, wherein the database can be a local database or a remote database.

19. (Original) The machine readable medium of claim 15 further comprising unprovisioning the one circuit and indicating the one circuit as the listening circuit structure in response to a subscriber ending event.

20. (Original) A network element comprising:

a network card having a port to couple a set of circuits; and

a computer coupled to the network card, the computer to provision one circuit of the set of circuits in response to receiving a packet on the one circuit.

21. (Original) The network element of claim 20 further comprising a remote database to store parameters for provisioning the one circuit.

22. (Original) The network element of claim 20, wherein the computer comprises:

a database to store a set of parameters;

a memory element to store a listening circuit structure and a set of provisioned circuit structures; and

an operating system to associate a set of the set of circuits with the listening circuit structure, and to provision the one circuit.

23. (Original) The network element of claim 22 wherein to provision the one circuit comprises:

to identify the one circuit;

to disassociate the one circuit from the listening circuit structure;

to create an empty circuit structure;

to populate the empty circuit structure with the set of configuration parameters, making the empty circuit structure a provisioned circuit structure; and

to associate the one circuit to the provisioned circuit structure.

24. (Original) The network element of a claim 20 further comprising the computer to unprovision one circuit of the set of circuits in response to a subscriber ending event.

25. (Original) An apparatus comprising:

a port to couple a set of circuits;

a memory element to store a listening circuit structure and a set of provisioned circuit structures;

a database to store a set of parameters for a subset of the set of circuits; and

a computer to provision one of the subset of circuits.

26. (Original) The apparatus of claim 25, wherein the database can be a local or remote database.

27. (Original) The apparatus of claim 25, wherein the computer to provision the one of the set of circuits comprises:

retrieving the set of parameters corresponding to the one circuit from the database;

creating an empty circuit structure for the one circuit, and

populating the empty circuit structure with the set of configuration parameters.

28. (Original) The apparatus of claim 25, wherein the computer provisions one of the subset of circuits in response to a packet being detected on the one circuit.

29. (Original) The apparatus of claim 25 further comprising unprovisioning the one of the subset of circuits in response to a subscriber ending event.

30. (Original) An apparatus comprising:

a port to couple a set of circuits;

a memory element to store a set of circuit structures;

a storage to store a set of parameters; and

a computer to provision one circuit of the set of circuits in response to a packet being received on the one circuit.

31. (Original) The apparatus of claim 30, wherein one of the set of circuit structures is a listening circuit structure.

32. (Original) The apparatus of claim 30, wherein the storage can be a local or remote storage.

33. (Original) The apparatus of claim 30, wherein the computer to provision one circuit of the set of circuits comprises:

to identify the one circuit;

to retrieve the set of parameters corresponding to the identified one circuit from the storage;

to create an empty circuit structure for the one circuit, and

to populate the empty circuit structure with the set of parameters.

34. (Original) The apparatus of claim 30 further comprising unprovisioning the one circuit of the set of circuits in response to a subscriber ending event.

35. (Currently Amended) A computer implemented method comprising:

receiving a packet on a circuit in a network element; and

provisioning the circuit in the network element in response to said receiving the packet on the circuit.

36. (Original) The method of claim 35, wherein the circuit is associated with a listening circuit structure before the packet is received on the circuit, and the circuit is disassociated from the listening circuit structure after the packet is received on the circuit.

37. (Original) The method of claim 35, wherein provisioning the circuit comprises:

identifying the circuit;

creating a provisioned circuit structure for the circuit; and

associating the circuit to the provisioned circuit structure.

38. (Original) The method of claim 35 further comprising unprovisioning the circuit upon a subscriber ending event.

39. (Original) The method of claim 37 wherein creating the provisioned circuit structure comprises:

retrieving a set of parameters corresponding to the circuit from a database; and

populating an empty circuit structure with the set of parameters.

40. (New) An apparatus comprising:

a network element including,

an interface to be coupled to a circuit;

a control process module operative to provision the circuit in response to receiving a packet on the circuit.

41. (New) The apparatus of claim 1, wherein the control process module further operative to associate the circuit with a listening circuit structure before the packet is received on the circuit, and the circuit is disassociated from the listening circuit structure after the packet is received on the circuit.

42. (New) The apparatus of claim 1, wherein the control process module to provision the circuit is operative to identify the circuit, create a provisioned circuit structure for the circuit, and associate the circuit to the provisioned circuit structure.

43. (New) The apparatus of claim 3, wherein the control process module to create the provisioned circuit structure is operative to retrieve a set of parameters corresponding to the circuit from a database and populate an empty circuit structure with the set of parameters.

44. (New) The apparatus of claim 1, wherein the control process module is operative to unprovision the circuit in response to a subscriber ending event.

45. (New) A method comprising:

configuring on a network element a plurality of circuits as listening, the plurality of circuits associated with a listening circuit structure;

converting any of said plurality of circuits configured as listening from listening to provisioned responsive to receipt of a packet thereon, wherein for each of the plurality of circuits converted said converting includes,

creating a provisioned structure that is empty,

retrieving a set of parameters for the circuit from a server external to the

network element,

populating the provisioned circuit structure with the set of parameters, and

associating the circuit with the provisioned circuit structure; and

reconverting any of said plurality of circuits configured as provisioned from

provisioned back to listening responsive to a predetermined event associated with that

circuit.

46. (New) The method of claim 45, wherein the memory required for one of the plurality

of circuits configured as listening is less than the memory required for one of the plurality

of circuits configured as provisioned.

47. (New) The method of claim 45, wherein said configuring includes enabling

oversubscribing by having more circuits than could be configured as provisioned at any

given moment.

48. (New) The method of claim 45, further comprising:

processing the plurality of packets received on the plurality of circuits configured

as provisioned.

49. (New) The method of claim 48, further comprising:

transmitting the plurality of packets to the Internet.

50. (New) The method of claim 45, wherein the predetermined event is an Internet

Service Provider (ISP) suspending a subscriber.

51. (New) The method of claim 45, wherein the predetermined event is a port failing, the

port associated with one of the plurality of circuits configured as provisioned.

52. (New) The method of claim 45, wherein the predetermined event is servicing the

network element.

53. (New) The method of claim 45, wherein the predetermined event is a subscriber switching from DSL service to cable service.

54. (New) A method comprising:

for each of a plurality entities, configuring in a network element a plurality of circuits as listening;

allowing each of said plurality of entities to maintain different sets of parameters for different ones of their plurality of circuits in a remote database, wherein the various sets of parameters specify accessibility of subscribers through said network element to networks of said plurality of entities;

for each of said circuits currently configured as listening on which a packet is received from one of said subscribers, attempting to provision in the network element that circuit with its set of parameters in said remote database; and

for each of said plurality of circuits that is currently provisioned on which a subscriber ending event occurs, unprovisioning that circuit in the network element.

55. (New) The method of claim 54, wherein said subscribers comprise at least one of residential, telecommuter, small business and corporation.

56. (New) The method of claim 54, wherein said remote database is a RADIUS database.

57. (New) The method of claim 54, wherein the subscriber ending event is an Internet Service Provider (ISP) suspending one of said subscribers.

58. (New) The method of claim 54, wherein the subscriber ending event is a port failing, the port associated with one of the plurality of circuits currently provisioned.

59. (New) The method of claim 54, wherein the subscriber ending event is servicing the network element.

60. (New) The method of claim 54, wherein the subscriber ending event is one of said subscribers switching from DSL service to cable service.

61. (New) A method comprising:

for each of a plurality of entities, configuring in a network element a plurality of circuits as listening as opposed to provisioned, wherein the network element lacks parameters to process packets received on those of the circuits currently configured as listening as opposed to provisioned, but attempts to access such parameters from a remote database responsive to receipt of packets thereon; and

allowing each of said plurality of entities to remotely provision their plurality of circuits configured as listening through maintenance of sets of parameters in said remote database that are retrieved as needed by the network element responsive to receipt of packets on those of the circuits configured as listening, wherein the various sets of parameters specify how to process packets of subscribers accessing services of said plurality of entities through said network element.

62. (New) The method of claim 61, wherein one of said services is selected from the group consisting of a premium branded service, internet access service, wholesale media service and corporate network accessibility.

63. (New) The method of claim 61, wherein said remote database is a RADIUS database.